

- MAAS, O.—“Die Craspedoten Medusen.” *Ergebnisse der Plankton-Expedition.* 1893.
 MURRAY, G.—“Exploration of the Intermediate Depths of the Ocean.” *Geogr. Journal*, xiii. pp. 147-154. 1899.

EXPLANATION OF PLATES IX. & X.

- Fig. 1.* *Laodice Chapmani*, sp. n.
Fig. 2. Ditto. Genital organ upon one of the radial canals (*r.c.*).
Fig. 3. Ditto. An ocellus seen from the side near the root of a radial tentacle (*te.*).
Fig. 4. *Bythotiara Murrayi*, gen. et sp. n.
Fig. 5. Ditto. Diagram showing the bifurcation of the radial canals (*r.c.*) and their relation to the base of the manubrium and its genital ridges (*g.*).
Fig. 6. *Aglantha rosea*, with normally developed conical process upon the exumbrella.
Fig. 7. Ditto. Exumbrella with shrunken conical process.
Fig. 8. Ditto. Portion of umbrella margin near the termination of one of the radial canals (*r.c.*). The velum (*v.*) has partially separated from the umbrella along the line of the circular canal, and the zone of tentacular depressions (*te.*) has separated with it.

BIBLIOGRAPHICAL NOTICES.

Zoological Wall-plates. By Prof. Dr. PAUL PFURTSCHELLER.
 Pichlers, Witwe, and Son: Vienna and Leipsic. 1902.

JUDGING by the sample plates which have been sent us, the zootomic wall-diagrams of Prof. Pfurtscheller should find many purchasers in this country. They are obviously the outcome of a practical experience in the teaching of elementary zoological anatomy, and in small class-rooms would prove admirable adjuncts.

Geological Survey of Canada. Contributions to Canadian Palæontology.—Vol. VII. Part 2. *On Vertebrata of the Mid-Cretaceous of the North-west Territory.* By H. F. OSBORN and L. W. LAMBE. 4to. 84 pages; with frontispiece, 20 plates, and 24 blocks of text-figures. Ottawa, 1902.

I. *Distinctive Characters of the Mid-Cretaceous Fauna.*
 By HARRY FAIRFIELD OSBORN.

THE determination by the Canadian Survey of a Mid-Cretaceous and freshwater fauna, including fishes, batrachians, reptiles, and mammals, is a forward step of great importance in vertebrate palæontology. The Belly-River formation has been determined geologically to be Mid-Cretaceous, lying lower in the series than the Montana[?] and the Fort Pierre and Fox Hills groups, and lying above the Fort Benton and Dakota. The Belly-River vertebrate

fossils are apparently comparable with those from the Judith-River beds proper in Montana. The Judith-River beds of the Laramie group lie above the Fort Pierre and Fox Hills beds; but the Belly-River vertebrates, judging by the stages of vertebrate evolution, have older characters—that is, they present more primitive features than are found in those of the Laramie and the Fort-Benton groups. Mr. Osborn's provisional correlation of the formations (at page 9) is as under:—

Freshwater.	{ Paskapoo (no Dinosaurs). }	Fort Union.	
Brackish and freshwater.	{ Edmonton.	{ Laramie and Judith River.	{ <i>Triceratops</i> , <i>Torosaurus</i> , <i>Dryptosaurus</i> , <i>Orni- thomimus</i> .
Marine.	{ Pierre and Fox-Hills group. }	{ Fox Hills. Fort Pierre.	
Fresh and brackish water.	{ Belly River.	{ Montana expo- sures in part.	{ <i>Sterecephalus</i> , <i>Mono- clonius</i> , <i>Ceratops</i> , <i>Trachodon</i> , <i>Deimo- don</i> , <i>Ornithomimus</i> , <i>Compsomys</i> , <i>Ptilodon</i> .
Sandy clays and sandstones.	{ 910 feet.	Niobara.	
	Fort Benton.	Fort Benton. Dakota.	

It has yet to be determined whether or not all the fossils recorded as from the Judith-River beds are from Montana or from the Laramie group.

The geological succession of the groups according to the Geological Survey appears to be as follows:—

Laramie { Paskapoo (Eocene Tertiary).
 { Edmonton (Upper Cretaceous).
Fort Pierre and Fox Hills.
Belly River.
Niobara and Fort Benton.
Dakota (with an Upper Cretaceous flora).

“The conclusion is that the Belly-River fauna is more ancient in character, both as to the older types of animals which it contains and as to the stages of evolution [shown] among animals which are also represented in the Laramie. The geological interval represented by the Fort-Pierre and Fox-Hills marine beds was accompanied by the extinction of certain Jurassic types and progressive evolution of persistent types. Finally, the fossil vertebrates, hitherto described from Montana, probably are, in part at least, of Mid-Cretaceous or Belly-River age” (page 21).

Details of the fossils are given at pp. 16-21 and tables of relationship and distribution at pp. 10-15.

II. *New Genera and Species from the Belly-River Series*
(*Mid-Cretaceous*). By LAWRENCE M. LAMBE.

The history of geological research by the Canadian Surveyors in the Belly-River district is explained at pp. 25-28, and then, at pp. 28-81, detailed descriptions are given of five fishes, one batrachian, twenty-six reptiles, and three mammals—altogether thirty-four, of which eleven are new. There are two short comparative tables of generic features of *Monoclonius* and *Polygonax* at p. 68 and specific of *Trachydodon* and *Pteropelyx* at p. 77.

The Evolution of the Northern Part of the Lowlands of South-eastern Missouri. By C. F. MARBET, Professor of Geology. Pp. vii & 63; 7 plates of views and maps. 8vo. Published by the University of Missouri. 1902.

THIS memoir belongs to vol. i. of 'The University of Missouri Studies.' It is very properly directed to the description and explanation of a portion of the State itself. This south-eastern part abuts on the western bank of the Mississippi below its junction with the Missouri River and above that with the Ohio. The northern part of the area is occupied by belts of low lands and ridges of no great height; it is limited on the west by the Ozark limestone-range. The relative levels and breadths are very carefully recorded, and their surface-characters are indicated by a few photographs in plates i. and ii.; and pl. iii. gives an admirable view of a crowded, melancholy, water-logged cypress-swamp. To show how the natural drainage of the country is traceable through its many changes, by the silting and banking-up of the rivers and the changes of their channels, is the object of the author, who, with his friends, has taken great pains to show that the Mississippi is now occupying its third successive channel, having been modified more than once by its junction with the Ohio River. Necessarily the relative hardness and softness of the strata composing the district have been important factors in this history, and so also has been from time to time the influx of water at the close of glacial periods. The Trenton Limestone (Lower Silurian) is at the base, constituting also the flanking Ozark territory, and seen in the bed of the Mississippi (pl. ii.). After the period of this being uplifted and eroded, Tertiary strata, as clay (Idalia), sands (Benton), and gravels (Princeton), came to be deposited there; and after a while the valley-deposits, namely, the Lafayette sands and gravels, the Loess, and the Terrace loam. The local distribution of all of these is shown by the map pl. vii.